



Artificial Intelligence: Reshaping the Future of Banking, Business and Finance

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ABSTRACT

Artificial Intelligence (AI) is fundamentally transforming the banking, business and finance sectors by automating processes, enhancing decision-making and personalizing customer experiences. This paper examines the role of AI across banking, business and finance operations, capital market activities and broader business ecosystem and investment strategies. It also analyzes the benefits-such as cost reduction, efficiency gains and improved financial inclusion-as well as the challenges associated with data privacy, algorithmic bias, regulation and workforce displacement. This paper examines the challenges of AI in banking, business and finance sectors.

Keywords: Artificial Intelligence, financial services, banking sector, digital transformation, business sector, data privacy.

INTRODUCTION

The 21st century has witnessed a paradigm shift in how financial institutions operate, driven largely by advances in artificial intelligence (AI). AI is a field of computer science focused on creating smart machines that can perform tasks that typically require human intelligence like learning, reasoning and problem solving. Artificial intelligence, “the science and engineering of making intelligent machines, especially intelligent computer programs,” uses large amounts of data and human knowledge of power computer systems with the ability to categorize data, make predictions, identify errors, have conversations and analyze information in a similar way to humans. One of the goals of artificial intelligence is to create computer systems that can mimic the critical thinking skills of humans. Organization use artificial intelligence (AI) to strengthen data analysis and decision-making, improve customer experiences, generate content, sales, marketing and cyber security practices and more.

We are using AI everyday in navigation apps like Google maps, personalized recommendations on shopping sites, spam filters in email and virtual assistants like Gemini Live. Artificial Intelligence is used as a tool to support a human workforce in optimizing workflows and making business operations more efficient. The Banking, Business and finance sector has seen a significant transformation as a result of the use of artificial intelligence (AI) technology. Artificial Intelligence (AI) has led significant progress in the banking industry, changing the way bank operate, interact with clients and reduce risk. AI, defined roughly as the capability of machines to imitate human cognitive functions such as learning, reasoning and problem solving has become a core enabler of digital transformation in banking and finance. The integration of AI into banking and finance is not merely a technological upgrade but a structural transformation of how institutions interact with customers, manage risk and allocate capital.

Modern banks are using AI across the front office (customer facing), middle office (risk, compliance) and back office operations (payments, settlements). 24/7 customer service via chatbots and virtual assistants (for example Bank of America’s “Erica” has handled over 1.5 billion interactions), reducing wait times and improving satisfaction. Hyper-personalization of product recommendations (loans, cards, investments) using machine-learning models that analyze spending patterns, income and life-stage events. Banking and Financial sector are



upgrading their technologies to give better services to its customers and help them plan their investments. Artificial Intelligence has helped the industry in multiple finance related roles like accounts, credit decision, detecting frauds, trading, investing, risk management, advisory service etc. AI helps to retrieve data faster and manage data more efficiently. State Bank of India has successfully experimented usage of Artificial Intelligence technologies in various field and tasted resounding success.

Artificial Intelligence in Business refers to applying advance technologies like machine learning, natural learning processing and automation to enhance operations, boost productivity and improve decision-making. AI in business enables organizations to automate tasks, personalize customer experiences and gain real time insights from data driving innovation, efficiency and long-term competitive advantage across industries. The adoption of AI in Business enables smarter operations, data driven insights and long-term competitive advantage. The applications of Artificial Intelligence in Business are expanding rapidly as companies integrate AI, machine learning and automation to improve efficiency, decision making and innovation across industries.

AI has revolutionized anti-money laundering (AML) and fraud-detection systems. Traditional rule-based monitoring systems generate large number of false-positive alerts, requiring extensive manual review and incurring high operational costs. In contrast, machine-learning models can detect subtle anomalies in transaction patterns-such as unusual timing, location or sequences-by learning from historical fraudulent and non-fraudulent cases.

Empirical studies report that AI supported transaction monitoring systems reduce false positives by up to 30-50% while simultaneously improving detection rates for suspicious activities. Some banks have reported double-digit reductions in fraud related losses after deploying AI driven card-fraud and account-takeover detection systems. In India, for example, several banks have begun piloting AI driven credit scoring models for small business loans and microfinance, with promising results in terms of both approval rates and delinquency control.

AI also streamlines regulatory compliance and KYC processes. Optical character recognition (OCR) and NLP tools can automatically extract customer-identity details from documents, verify them against public database and flag suspicious discrepancies. This reduces onboarding time from days to minutes and significantly lowers the cost of customer-acquisition workflows. One of the most documented benefits of AI in banking is cost reduction.

Automation of onboarding, KYC, document-processing, reconciliation and customer service tasks reduces manual effort and human-error rates. Studies estimates that AI driven automation can cut operational costs in banking by 20-30% over the medium term, depending the scope of implementation.

To use AI in an effective business strategy, an organization must have a clear understanding of its business functions, how AI works and what aspects of the business can be improved through AI implementation. While the use of AI tools to automate repetitive tasks and increase employee productivity remains popular, businesses are also moving beyond these use cases and using AI to assist in higher-level, strategic initiatives that help drive broader business value.

Objective of the Study

The major objectives of the study are :

- To Examine AI-driven applications in banking
- To analyze the role of AI in Business and investment management
- To find out the challenges for AI in Banking, Business and Financial Sector

RESEARCH METHODOLOGY

The Research method adopted for this study is descriptive and based on secondary data. Secondary data have been collected from the previous research work and studies in the related study area. Under this we also use Government Reports, Websites, Articles, News Papers.



REVIEW OF LITERATURE

1. **A Study on Artificial Intelligence (AI) in Banking and Financial Services (A. Geetha)** : This Research Paper conclude that AI has numerous advantages to offer for the financial segment. AI in Banking and Financial services satisfying their clients or consumer's needs. Adoption of Banking and Financial services AI in application was highest followed by KYC/AML, chatbots and security compliance and also helping to fulfill the customer demand faster and easier.
2. **Artificial Intelligence in Indian Banking Sector: An Overview (Radhika K G, Shriraksha R)** : They want to say that banking sector is becoming one of the most adopters of AI and implementing the technology in different ways. The applications of AI include smarter chatbots for customer service, personalizing services for individuals and even placing an AI robot for self service at banks. AI is set to become the sole determinant of the competitive position of Indian banks.
3. **Artificial Intelligence in Banking and Finance (Ashima Narang, Priyanka Vashisht, Shalini Bhaskar Bajaj)**: This research work conclude that artificial intelligence (AI) in banking and finance offers significant benefits, such as increased productivity, improved decision-making, lower costs and increased client satisfaction. In order to fully utilize, AI financial organizations must address issues with bias, data privacy and ethical considerations.
4. **The impact of Artificial Intelligence on the future of Banking and How to achieve a smooth transition (John Smit)**: The banking Industry must fully integrate artificial intelligence to strengthen its future profitability and competitiveness. However, this transformation requires a deep understanding of AI, acceptance of its role and proper implementation.

FINDING AND DISCUSSION

Artificial Intelligence (AI) has become a cornerstone for businesses across every industry, revolutionizing how organizations approach strategy, operations and customer engagement. The adoption of AI in business began gaining traction in the early 2010s, as organizations sought advanced tools to stay competitive in a rapidly evolving, tech-driven world. Today, its influence spans a wide range of sectors, including marketing, supply chain management, financial services and healthcare. AI enables businesses to streamline operations, improve decision-making and anticipate customer needs with precision. The global AI market is projected to grow from \$651.19 billion in 2024 to \$2.74 trillion by 2032, with North America leading the way with 41% of the market share.

India's technology sector is expanding rapidly, with annual revenues projected to cross USD 280 billion in 2025. Over 6 million people are employed in the tech and AI ecosystem and the country hosts 1800+ global capability centres, including more than 500 focused on AI. India has around 1.8 lakh startups and nearly 89% of new startups launched in 2025 used AI in their products or services.

On the NASSCOM AI adoption index, India scores 2.45 out of 4, showing that 87% of enterprises are actively using AI solutions. About 26% of Indian companies have achieved AI maturity at scale, according to a recent BCG(Boston consulting Group) survey. Leading sectors in AI adoption include industrial and automotive, consumer goods and retail, banking, financial services and insurance and healthcare. Together they contribute around 60% of AI's total value.

Guided by the vision of "Making AI in India and Making AI work for India", the cabinet approved the **India AI Mission** in March 2024, with a budget outlay of rs10,371.92 crore over five years. The mission marks a defining step towards making India a global leader in Artificial Intelligence. Since its launch, the mission has made strong progress in expanding the country's computing infrastructure. From an initial target of 10,000 GPUs, India has now achieved 38,000 GPUs, providing affordable access to world-class AI resource. **"A GPU or Graphics Processing Unit is a powerful computer chip that helps machine think faster, process images, run AI programs and handle complex tasks more efficiently than a regular processor."**

A key innovation is the concept of a "customer 360" view, where AI consolidates fragmented data from multiple channels (mobile app, web portal, branch visit, ATM usage) into a single dynamic profile. This 360⁰ view enables banks to anticipate customer needs, proactively offer relevant products and tailor pricing and promotions.



Regulatory bodies are beginning to require that AI models used in high-stake domains (lending, insurance, AML) be explainable and auditable.

Challenges

In today's digital age, artificial intelligence (AI) has emerged as an invaluable resource for companies. Its benefits are many and varied and its application can radically transform the way organizations operate. As such, AI's capacity to analyze large volumes of data, automate processes and improve decision-making makes it an indispensable tool to ensure the efficiency of modern companies. The adoption of AI in companies is not without significant challenges and drawbacks. From the displacement of jobs to ethical and privacy concerns, the implementation of AI present a number of hurdles that we must approach with caution.

- The adoption of artificial intelligence technologies can involve a substantial upfront investment in terms of software, hardware and training of personal. This financial barrier can obviously represent an obstacle for small and medium-sized enterprises.
- The lack of AI experts may slow adoption and limit the potential of this type of technology.
- The use of artificial intelligence in a company involves handling large amounts of data, which can raise concerns about information security and privacy. Companies have an obligation to ensure that data is managed in an ethical and secure manner to avoid leaks and loss of customer trust.
- While process automation can improve efficiency, it can also lead to job losses, especially in roles that rely on repetitive tasks. This poses a social and economic challenge that companies and governments must address by retraining and supporting affected workers.
- One of the most significant challenges in implementing AI in banking is ensuring data privacy and security.
- The development of explainable AI techniques is crucial for meeting regulatory requirements and ensuring that AI decisions can be understood and audited by stakeholders.
- Banks often face challenges related to the availability or biased data can lead to inaccurate AI predictions and decisions.
- While AI promises unparalleled benefits, the initial investment in AI infrastructure, talent acquisition and system integration can be substantial. It's a crucial consideration that banks must weigh against the long-term advantages.
- There are some ethical concerns surrounding the use of AI in banking, such as the potential for bias and discrimination in algorithmic decision-making processes.
- The demand for AI and data science experts in the banking industry is high, which is leading to a competitive talent landscape. Bank face challenges in attracting and retaining top AI talent and upskilling their existing workforce to leverage AI effectively.

CONCLUSION

Artificial Intelligence is reshaping the future of banking, business and finance by transforming how institutions serve customers, manage risk and allocate capital. AI-driven applications in customer service, fraud detection, credit underwriting and investment management offer substantial benefits in efficiency, personalization and financial inclusion. However, these benefits come with significant challenges, including data privacy, algorithmic bias, explainability gaps and workforce displacement. To harness AI responsibly, financial institutions must embed robust governance, fairness audits, and human oversight into their AI strategies. Regulators, in turn, must develop principles-based frameworks that encourage innovation while safeguarding consumers and financial stability. As AI continues to evolve, banks and fintech firms that balance technological innovation with ethical and regulatory accountability will be best positioned to the next generation of financial services.

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